This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for correcting a defective pixel in an image produced by a detector, the image including an array of pixels and the array of pixels having a corresponding array of pixel values, comprising:

(a) determining a local gradient, the local gradient comprising an array of local gradient matrix elements; and

(b) providing a correction value based on the local gradient to correct the defective pixel.

2. (Original) The method of claim 1, wherein step (a) of determining a local gradient includes determining the local gradient in part from a gradient kernel and at least a portion of the array of pixel values.

3. (Original) The method of claim 2, wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and a surrounding neighboring pixels of the defective pixel as remaining matrix elements.

4. (Original) The method of claim 2, further comprising:

selecting a matrix size of the at least a portion of the array of pixel values; and

selecting the gradient kernel from a group including a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

5. (Original) The method of claim 1, wherein step (b) of providing a correction value includes at least one of a linear interpolation and a weighted average of pixel values corresponding to the highest local gradient matrix elements.

6. (Original) The method of claim 5, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

7. (Original) The method of claim 5, wherein the weighted average of pixel values having the highest local gradient matrix elements include giving greater weight to pixel values proximate to the defective pixel.

8. (Original) The method of claim 1, further comprising:

identifying the defective pixel in the image produced by the detector before the determining step (a);

replacing temporarily the defective pixel with a linear interpolation of a surrounding neighboring pixels of the defective pixel before the determining step (a); and

replacing the defective pixel with the correction value after the providing step (b).

9. (Original) The method of claim 1, further comprising repeating steps (a)-(b) a plurality of times as desired to correct a plurality of defective pixels in the image produced by the detector.

10. (Original) A system for correcting a defective pixel in an image produced by a detector, comprising:

a processor coupled to the detector, the processor configured to determine a local gradient and to generate a correction value based on the local gradient, wherein the image includes an array of pixels, each pixel having a corresponding pixel value, and the local gradient comprising an array of local gradient matrix elements.

11. (Original) The system of claim 10, wherein the processor is configured to determine the local gradient partly from a gradient kernel and at least a portion of the array of pixel values.

12. (Original) The system of claim 11, wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and a surrounding neighboring pixels of the defective pixel as remaining matrix elements.

13. (Original) The system of claim 11, further comprising an operator console coupled to the processor and configured to select a matrix size of the at least a portion of the array of pixel values and to select the gradient kernel from a group including a Laplacian of a

Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

14. (Original) The system of claim 10, wherein the correction value comprises at least one of a linear interpolation and a weighted average of pixel values having the highest local gradient matrix elements.

15. (Original) The system of claim 14, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

16. (Original) The system of claim 15, wherein the weighted average of pixel values having the highest local gradient matrix elements include providing greater weight to pixels proximate to the defective pixel.

17. (Original) The system of claim 10, wherein the detector comprises an array of photodetector elements, each photodetector element configured to convert an impinging photonic energy into an electrical signal proportional thereto.

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18. (Original) The system of claim 10, wherein the processor is configured to determine the local gradient and to generate the correction value for each of a plurality of defective pixels in the image produced by the detector.

19. (Original) A system for correcting a defective pixel in an image produced by a detector, the image including an array of pixels, the array of pixels having a corresponding array of pixel values, comprising:

(a) means for determining a local gradient, the local gradient comprising an array of local gradient matrix elements; and

(b) means for providing a correction value based on the local gradient to correct the defective pixel.

20. (Original) The system of claim 19, wherein the local gradient is determined in part from a gradient kernel and at least a portion of the array of pixel values.

21. (Original) The system of claim 20, wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and a surrounding neighboring pixels of the defective pixel as remaining matrix elements.

22. (Original) The system of claim 20, further comprising means for selecting a matrix size of the at least a portion of the array of pixel values and means for selecting the gradient kernel from a group including a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

23. (Original) The system of claim 19, wherein the correction value comprises at least one of a linear interpolation and a weighted average of pixel values having the highest local gradient matrix elements.

24. (Original) The system of claim 23, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

25. (Original) The system of claim 23, wherein the weighted average of pixel values having the highest local gradient matrix elements include providing greater weight to pixels proximate to the defective pixel.

26. (Original) The system of claim 19, wherein the means for determining and the means for providing include determining the local gradient and generating the correction value, respectively, for each of a plurality of defective pixels in the image produced by the detector.

27. (Original) The system of claim 19, further comprising:

means for temporarily replacing the defective pixel with a linear interpolation of a surrounding neighboring pixels of the defective pixel before the local gradient is determined; and

means for replacing the defective pixel with the correction value.

28. (Original) The system of claim 27, wherein the means for replacing includes at least one of replacing the defective pixel with the correction value, and storing the correction value with an identifying link to the defective pixel in a storage device.

29. (New) A method for correcting a defective pixel in an image produced by a digital x-ray detector, the image including an array of pixels and the array of pixels having a corresponding array of pixel values, the method comprising:

acquiring an image from the digital x-ray detector;

determining a local gradient, the local gradient comprising an array of local gradient matrix elements; and

providing a correction value, which is based on the local gradient, to correct the defective pixel.

30. (New) The method of claim 29, wherein determining a local gradient includes determining the local gradient in part from a gradient kernel and at least a portion of the array of pixel values.

31. (New) The method of claim 30, wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and a surrounding neighboring pixels of the defective pixel as remaining matrix elements.

32. (New) The method of claim 30, further comprising:

selecting a matrix size of the at least a portion of the array of pixel values; and

selecting the gradient kernel from a group including a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

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33. (New) The method of claim 29, wherein providing a correction value includes at least one of a linear interpolation and a weighted average of pixel values corresponding to the highest local gradient matrix elements.

34. (New) The method of claim 33, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

35. (New) The method of claim 33, wherein the weighted average of pixel values having the highest local gradient matrix elements include giving greater weight to pixel values proximate to the defective pixel.

36. (New) The method of claim 29, further comprising:

identifying the defective pixel in the image produced by the detector before determining a local gradient;

temporarily replacing the defective pixel with a linear interpolation of a surrounding neighboring pixels of the defective pixel before determining a local gradient; and

replacing the defective pixel with the correction value.

37. (New) A method for correcting a defective pixel in an image produced by an x-ray detector having a defective input at the pixel, the image including an array of pixels and the pixels having corresponding pixel values, the method comprising:

receiving the image from the x-ray detector;

analyzing global characteristics of pixels in proximity to the defective pixel; and

correcting the defective pixel based on the global characteristics.

38. (New) The method of claim 37, wherein the pixels in proximity to the defective pixel whose global characteristics are analyzed include at least a few pixels that are within a three pixel radius of the defective pixel, and that do not border the defective pixel.

39. (New) The method of claim 38, wherein analyzing global characteristics of pixels in proximity to the defective pixel comprises determining gradient pixel values of pixels in proximity to the defective pixel.

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40. (New) The method of claim 39, wherein correcting the defective pixel based on the global characteristics comprises determining a correction value for the defective pixel using the gradient pixel values of pixels in proximity to the defective pixel.

41. (New) The method of claim 38, wherein the pixels surrounding the defective pixel whose global characteristics are analyzed include at least those pixels within a 5 by 5 array where the defective pixel is at a center of the array.

42. (New) The method of claim 41, wherein analyzing global characteristics of pixels in proximity to the defective pixel comprises analyzing characteristics of an array made of about seven columns and about seven rows of pixels, where the defective pixel is at a center of the array.

43. (New) The method of claim 37, wherein the pixels in proximity to the defective pixel whose global characteristics are analyzed include at least those pixels that are not defective and that are within a three pixel radius of the defective pixel.